

First Named Inventor: Crane et al.

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and a second beam pair element aligned with a length and the width of the rotor; and

at least one deflection limiter for limiting deflection in the direction of the length of the rotor.

23. The disc drive of claim 22 wherein each deflection limiter comprises:
- a hook formed in the slider bonding pad; and
  - a stop wall formed in the stator such that when the slider is longitudinally pulled away from the stator the hook engages the stop wall and prevents further movement of the slider.

#### REMARKS AND SUMMARY OF TELEPHONE INTERVIEW

This is a supplemental amendment to the amendment filed May 19, 2003 in response to the office action mailed on February 21, 2003. This amendment was requested by Examiner Chen in a telephone interview with Applicant's attorney, Gayle A. Bush on June 18, 2003.

Applicant respectfully thanks Examiner Chen for contacting Ms. Bush for an interview on June 6, 2003 and speaking with Ms. Bush again on June 18, 2003. Examiner Chen initially contacted Ms. Bush to inquire whether appropriate language for claim 1 would be "means for limiting deflection of the rotor out of a plane defined by the microactuator frame" rather than "means for limiting deflection of the stator out of a plane defined by the microactuator frame." Applicant agrees with the Examiner Chen's suggestion. On June 18, 2003, Examiner Chen requested that the present amendment be filed in conformance with his suggestion.

The amendment to the claims is made to clarify the claimed invention in conformance with Examiner Chen's suggestion. The invention as described in the specification includes a beam structure for limiting deflection of the microactuator rotor out of vertical and horizontal planes defined by the microactuator. (Page 1, lns 7-9; page 2, lns 13-14; page 5, lns 9-10; page 6, lns 1-19; page 8, lns 3-9; page 8-9, lns 8:20-9:4; page 9, lns 5-22; FIGS. 3-7). As suggested by Examiner

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Chen and agreed to by Applicant, claims 1, 2, 5-7 and 20 have been amended to reflect that movement of the rotor is limited out of the planes defined by the microactuator. The application now stands in condition for allowance and a notice to that effect is respectfully requested.

Respectfully submitted,

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**APPENDIX:  
MARKED UP VERSION OF SPECIFICATION AND CLAIM AMENDMENTS**

1. (Amended) A microactuator for finely positioning a transducing head carried by a slider adjacent a select radial track of a disc, the microactuator comprising:
  - a microactuator frame having a stator and having a rotor which holds the slider and is movable with respect to the stator; and
  - means for limiting deflection of the [stator] rotor out of a plane defined by the microactuator frame.
2. (Amended) The microactuator of claim 1 wherein the means for limiting deflection of the [stator] rotor comprises a beam structure operatively connecting the rotor to the stator so as to permit movement of the rotor with respect to the stator, the beam structure including a first beam pair element defining a rotation center and a second beam pair element arranged to restrain the [stator] rotor from twisting out of plane.
5. (Amended) The microactuator of claim 1 wherein the means for limiting deflection of the [stator] rotor is operable to limit deflection of the [stator] rotor out of a plane defined by the microactuator frame to less than one micron.
6. (Amended) The microactuator of claim 1, and further comprising:
  - at least one deflection limiter for limiting deflection [of the stator] in the direction of the length of the rotor.
7. (Twice Amended) A disc drive having a recording disc rotatable about an axis, a slider supporting a transducing head for transducing data with the disc, and a dual-stage actuation assembly supporting the slider to finely position the transducing head adjacent a selected radial track of the disc, the dual-stage actuation assembly comprising:
  - a movable actuator arm;
  - a suspension assembly supported by the actuator arm, the suspension assembly including a flexure;
  - a slider bonding pad supporting the slider; and
  - a microactuator comprising:
    - a rotor attached to the slider;
    - a stator attached to the flexure; and
    - a beam structure operatively connecting the rotor to the stator so as to permit movement of the rotor with respect to the stator wherein the beam structure limits deflection of the [stator] rotor out of a plane defined by the microactuator, the beam structure including a first beam pair element aligned with a width of the rotor and a second beam pair element aligned with a length and the width of the rotor.

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**APPENDIX:  
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20. (Twice Amended) A disc drive having a recording disc rotatable about an axis, a slider supporting a transducing head for transducing data with the disc, and a dual-stage actuation assembly supporting the slider to finely position the transducing head adjacent a selected radial track of the disc, the dual-stage actuation assembly comprising:

- a movable actuator arm;
- a suspension assembly supported by the actuator arm, the suspension assembly including a flexure; and
- a microactuator comprising:

- a rotor attached to the slider;
- a stator attached to the flexure; and
- means for operatively connecting the rotor to the stator so as to permit movement of the rotor with respect to the stator, wherein the means permits microactuation of the microactuator while limiting motion of the [stator] rotor out of a horizontal plane of the microactuator and limiting motion of the slider longitudinally.